



ISSN 1000-3428
CN 31-1289/TP
CODEN JISGEV

计算机工程
(月刊)

计算机工程

Computer Engineering

www.ecice06.com

第47卷 - 第3期 - 2021年3月15日
Vol.47 - No.3 - 15 March 2021

2021 3

■ 北大中文核心期刊 ■ 中科院CSCD核心期刊 ■ 中国科技核心期刊 ■ RCCSE中国核心学术期刊 ■ 工业和信息化部精品期刊

第47卷-第3期-2021年3月15日

www.ecice06.com



华东计算技术研究所 主办
上海市计算机学会

计算机工程 (月刊)

Jisuanji Gongcheng

第 47 卷 第 3 期 2021 年 3 月 15 日

目 次

• 热点与综述 •

- 基于深度学习的二维人体姿态估计研究进展·····刘 勇,李 杰,张建林,徐智勇,魏宇星 (1)
- 基于区块链的可信分布式能源共享网络研究 ·····郭佳程,宁德军,李泱丞,沈 建 (17)
- 移动边缘计算中基于 Lyapunov 的任务卸载与资源分配算法 ·····唐 伦,胡彦娟,刘 通,陈前斌 (29)
- 结合协方差与变异系数的密码芯片能量泄漏评估模型·····蔡爵嵩,严迎建,朱春生 (37)
- 5G 超密集异构网络带内无线回传资源分配方案 ·····余钊贤,易辉跃,裴 俊 (43)

• 人工智能与模式识别 •

- 基于 SVD 和 ARIMA 的时空序列分解与预测 ·····杨立宁,李艳婷 (53)
- 面向轨迹流数据的索引构建与存储方法研究·····蔡瑞初,林峰极,郝志峰,王 立,温 雯 (62)
- 结合数据库结构及内容的问句理解方法研究 ·····袁志祥,任冬冬,洪旭东,孙国华 (71)
- 基于特征聚合网络的小样本学习方法·····叶 萌,杨 娟,汪荣贵,薛丽霞,李 懂 (77)
- 手机信令的时空密度轨迹点识别算法·····陈 略,熊 宸,蔡 铭 (83)
- 结合五笔字形与上下文相关字向量的命名实体识别·····张 栋,王铭涛,陈文亮 (94)
- 基于多特征和尺度估计的 KCF_MTSA 算法·····尚枢朝,孟令军 (102)
- 基于邻域归属信息混合度量的粗糙 K-Means 算法 ·····孙静勇,马福民 (109)
- 一种基于邻居结构的影响传播模型·····尹月双,孙艳红,刘 勇 (117)
- 基于半自动编码器的协同过滤推荐算法·····张浩博,薛 峰,刘 凯 (125)

• 网络空间安全 •

- 考虑个体警觉行为的双层网络流行病传播模型·····王 帅,宋玉蓉,宋 波 (131)
- 一种基于攻击树的 4G 网络安全风险评估方法·····王赛娥,刘彩霞,刘树新,柏 溢 (139)
- 距离与权重相结合的导向式灰盒模糊测试方法 ·····李明磊,陆余良,黄 晖,朱凯龙 (147)

轻量级分组密码算法 DoT 的模板攻击	孙家异, 韦永壮 (155)
一种时序型总线硬件木马的植入与检测	黄姣英, 李胜玉, 高成, 杨达明 (160)
基于动态行为和机器学习的恶意代码检测方法	陈佳捷, 彭伯庄, 吴佩泽 (166)
• 移动互联与通信技术 •	
基于双簇头的无线传感器网络反馈信任模型	周远林, 陶洋, 李正阳, 杨柳 (174)
基于加权反馈三维混沌系统的调制跳变通信	刘鹏飞, 杜欣军 (183)
NDMANET 中基于内容优先级的缓存策略研究	高子轩, 郑焱 (190)
面向并发业务的卫星网络服务功能链优化算法	潘成胜, 梁芷铭, 石怀峰, 孔志翔 (196)
适用于飞行自组网的闲置时隙预约 TDMA 协议	陆毅, 符杰林, 仇洪冰, 林基明, 李燕龙 (202)
基于冗余任务消减的边缘应用性能优化	宋煜, 张帅, 严永辉, 钱柱中 (209)
基于灰色马尔科夫预测的移动多路传输调度算法	李宁, 袁璐洁, 高楷 (218)
群智感知中基于时空关联性的用户激励机制	周强, 李鹏, 聂雷 (227)
• 图形图像处理 •	
内容一致性行人重识别算法	田智慧, 郑付科, 高需 (237)
基于多尺度和多层次特征融合的立体匹配方法	王金鹤, 车志龙, 张楠, 孟凡云, 苏翠丽, 谭浩 (243)
基于生成式对抗网络的图像超分辨率重建算法	姜玉宁, 李劲华, 赵俊莉 (249)
Mask R-CNN 中特征不平衡问题的全局信息融合方法	文韬, 周稻祥, 李明 (256)
基于特征图注意力机制的图像超分辨率重建	鲁甜, 刘蓉, 刘明, 冯杨 (261)
基于注意力机制与特征融合的图像超分辨率重建	王诗言, 曾茜, 周田, 吴华东 (269)
基于多尺度边缘保持分解与 PCNN 的医学图像融合	郭淑娟, 高媛, 秦品乐, 王丽芳 (276)
• 开发研究与工程应用 •	
融合马尔科夫决策过程与信息熵的对话策略	朱映波, 赵阳洋, 王佩, 尹凯, 王振宇 (284)
基于高斯滤波器组混合特征的录音回放攻击检测研究	陈旭, 蒋晔 (291)
基于 NCS2 神经计算棒的车辆检测方法	江泉宇, 李忠兵, 张军豪, 彭娇, 文婷 (298)
基于 Expectimax 搜索与 Double DQN 的非完备信息博弈算法	雷捷维, 王嘉旻, 任航, 闫天伟, 黄伟 (304)
基于故障观测器的多无人机姿态一致性控制	唐余, 薛智爽, 刘小芳, 刘永春, 张果, 余亮 (311)

Computer Engineering (Monthly)

Vol.47 No.3 15 March 2021

Contents

• Hot Topics and Reviews •

Research Progress of Two-Dimensional Human Pose Estimation Based on Deep Learning	LIU Yong, LI Jie, ZHANG Jianlin, XU Zhiyong, WEI Yuxing (1)
Research on Trusted Distributed Energy Sharing Network Based on Blockchain	GUO Jiacheng, NING Dejun, LI Yangcheng, SHEN Jian (17)
Task Offloading and Resource Allocation Algorithm Based on Lyapunov in Mobile Edge Computing	TANG Lun, HU Yanjuan, LIU Tong, CHEN Qianbin (29)
Energy Leakage Evaluation Model of Cryptographic Chip Combining with Covariance and Variation Coefficient	CAI Juesong, YAN Yingjian, ZHU Chunsheng (37)
Resource Allocation Scheme of In-Band Wireless Backhaul in 5G Ultra-Dense Heterogeneous Network	YU Zhaoxian, YI Huiyue, PEI Jun (43)

• Artificial Intelligence and Pattern Recognition •

Spatio-Temporal Sequence Decomposition and Prediction Based on SVD and ARIMA	YANG Lining, LI Yanting (53)
Research on Index Construction and Storage Method for Trajectory Stream Data	CAI Ruichu, LIN Fengji, HAO Zhifeng, WANG Li, WEN Wen (62)
Research on Question Understanding Method Combining Database Structure and Content	YUAN Zhixiang, REN Dongdong, HONG Xudong, SUN Guohua (71)
Small Sample Learning Method Based on Feature Aggregation Network	YE Meng, YANG Juan, WANG Ronggui, XUE Lixia, LI Dong (77)
Recognition Algorithm for Space-Time Density Track Points of Cellular Signaling	CHEN Lüe, XIONG Chen, CAI Ming (83)
Named Entity Recognition Combining Wubi Glyphs with Contextualized Character Embeddings	ZHANG Dong, WANG Mingtao, CHEN Wenliang (94)
KCF_MTSA Algorithm Based on Multiple Features and Scale Estimation	SHANG Yachao, MENG Lingjun (102)
Rough K-Means Algorithm Based on Mixed Measure of Neighborhood Partition Information	SUN Jingyong, MA Fumin (109)
An Influence Propagation Model Based on Neighbor Structure	YIN Yueshuang, SUN Yanhong, LIU Yong (117)
Collaborative Filtering Recommendation Algorithm Based on Semi-Autoencoder	ZHANG Haobo, XUE Feng, LIU Kai (125)

• Cyberspace Security •

Epidemic Spreading Model Considering Individual Alert Behavior Using Bilayer Network	WANG Shuai, SONG Yurong, SONG Bo (131)
A Method of 4G Network Security Risk Assessment Based on Attack Tree	WANG Saie, LIU Caixia, LIU Shuxin, BAI Yi (139)
Guided Grey-Box Fuzzing Test Method Combining Distance and Weight	LI Minglei, LU Yuliang, HUANG Hui, ZHU Kailong (147)
Template Attacks Against Lightweight Block Cipher Algorithm DoT	SUN Jiayi, WEI Yongzhuang (155)

Implantation and Detection of a Sequential Bus Hardware Trojan	HUANG Jiaoying, LI Shengyu, GAO Cheng, YANG Daming (160)
Malicious Code Detection Method Based on Dynamic Behavior and Machine Learning	CHEN Jiajie, PENG Bozhuang, WU Peize (166)
• Mobile Internet and Communication Technology •	
Double Cluster Head-based Feedback Trust Model for Wireless Sensor Network	ZHOU Yuanlin, TAO Yang, LI Zhengyang, YANG Liu (174)
Modulation Hopping Communication Based on Three-Dimensional Chaotic System with Weighted Feedback	LIU Pengfei, DU Xinjun (183)
Research on Content Priority-Based Caching Strategy in NDMANET	GAO Zixuan, ZHENG Quan (190)
Optimization Algorithm of Satellite Network Service Function Chain for Concurrent Services	PAN Chengsheng, LIANG Zhiming, SHI Huaifeng, KONG Zhixiang (196)
Idle Time Slot Reservation TDMA Protocol for Flying Ad-Hoc Networks	LU Yi, FU Jieli, QIU Hongbing, LIN Jiming, LI Yanlong (202)
Application Performance Optimization in Edge Computing Scenario Based on Redundant Task Reduction	SONG Yu, ZHANG Shuai, YAN Yonghui, QIAN Zhuzhong (209)
Mobile Multi-Path Transmission Scheduling Algorithm Based on Grey Markov Prediction	LI Ning, ZHONG Lujie, GAO Kai (218)
User Incentive Mechanism Based on Spatial-Temporal Correlation for Crowd Sensing	ZHOU Qiang, LI Peng, NIE Lei (227)
• Graphics and Image Processing •	
Content-Consistent Pedestrian Re-identification Algorithm	TIAN Zhihui, ZHENG Fuke, GAO Xu (237)
Stereo Matching Method Based on Multi-Scale and Multi-Level Features Fusion	WANG Jinhe, CHE Zhilong, ZHANG Nan, MENG Fanyun, SU Cuili, TAN Hao (243)
Image Super-Resolution Reconstruction Algorithm Based on Generative Adversarial Networks	JIANG Yuning, LI Jinhua, ZHAO Junli (249)
Global Information Fusion Method for Feature Imbalance Problem in Mask R-CNN	WEN Tao, ZHOU Daoxiang, LI Ming (256)
Image Super-Resolution Reconstruction Based on Attention Mechanism of Feature Map	LU Tian, LIU Rong, LIU Ming, FENG Yang (261)
Image Super-Resolution Reconstruction Based on Attention Mechanism and Feature Fusion	WANG Shiyan, ZENG Xi, ZHOU Tian, WU Huadong (269)
Medical Image Fusion Based on Multi-Scale Edge-Preserving Decomposition and PCNN	GUO Shujuan, GAO Yuan, QIN Pinle, WANG Lifang (276)
• Development Research and Engineering Application •	
Dialogue Strategy Integrating Markov Decision Process and Information Entropy	ZHU Yingbo, ZHAO Yangyang, WANG Pei, YIN Kai, WANG Zhenyu (284)
Research on Recording Playback Attack Detection Based on Mixed Features of Gaussian Filter Bank	CHEN Xu, JIANG Ye (291)
Vehicle Detection Method Based on NCS2 Neural Computing Stick	JIANG Xiaoyu, LI Zhongbing, ZHANG Junhao, PENG Jiao, WEN Ting (298)
Incomplete Information Game Algorithm Based on Expectimax Search and Double DQN	LEI Jiewei, WANG Jiayang, REN Hang, YAN Tianwei, HUANG Wei (304)
Attitude Consistency Control of Multiple UAVs Based on Fault Observer	TANG Yu, XUE Zhishuang, LIU Xiaofang, LIU Yongchun, ZHANG Guo, YU Liang (311)